RCS250L30T and RCS200L30T

Installation and User Manual

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Warning: Please read and understand the information in this manual before installing or operating the RCS250L30T or RCS200L30T solar hot water unit.

Max Energy Output 2.4 kW
Max Working Pressure 600 kPa
Watermark - AS74500

Caution: **DO NOT OBSTRUCT VENT**.
Install with 500kPa Pressure Reducing Valve on the input system
Install with 600kPa Expansion control Valve on Tank cold water supply pipe in a FROST FREE position - Drain pipe facing continuously downwards (Valve to AS1357.1)
Install water heater to requirements of AS/NZS3500.4
ABS Plastic Heater termination cover - IPX4

CAUTION
When working with this equipment:
Shut off water supply to prevent scalding and burning

The appliance is not to the used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge,

unless they have been given supervision or instruction

Children should be supervised to ensure they do not play with the appliance

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1. Notice.

1.1 The information in the manual is subject to change without notice. Additional pages may be inserted in future editions.

1.2 The serial number can be found on the back of the tank. If there is no serial number or if it is damaged the product may not be covered under warranty.

1.3 **Please ensure that cold water is not pumped or supplied into an empty tank when the collector (evacuated tubes) has been exposed to sunlight for more than 15 minutes.** The tubes will become extremely hot and can crack when filled with cold water. Befor filling for the first time or after maintenance, cover the tubes/collector to ensure they do not get hot befor filling.

1.4 Installation needs to be done by a qualified plumber to ensure all local laws and standards are met. Warranty may be void if the system is installed incorrectly.

1.5 The system should be mounted in a position that maximizes the amount of sunlight exposure. Generally in Australia this is north but depending on the installation site, either east or west may be chosen. They are a number of factors to be taking into consideration including, shading, micro climates and roof availability. Please contact us to discuss design details.

1.6 Red circle solar recommends insulating all external pipework to protect against frost and heat loss. Please use a Solar hot water specific lagging.

1.7 Any modifications to the components will void the warranty.

2. Transporting the Solar hot water system.

2.1 Open taking delivery or picking up the system from the warehouse or distributor please ensure there is no damage to the goods as any damage

2.2 Handle all cartons with care.

2.3 When handling the evacuated tube boxes do not stack boxes more than 3 high during transport.

2.4 It is advisable to but padding under the boxes during transport.

2.5 Keep all cartons dry.

2.6 The Red circle solar system is not covered under warranty against failure as a result of damage incurred during transport or installation.

3. Pre Installation.

3.1 **Local council approval**. You may need council approval to install the Red circle solar hot water system. Check with your local council befor starting the installation.

3.2 **Authorised persons**. The red circle solar hot water system (along with every hot water system sold in Australia) must be installed by suitably qualified tradespeople.

3.3 **Saftey.** At all times the qualified tradesperson installing the red circle solar system must adhere to occupational health and safety guidelines as outline by workcare/workcover in your state and other relevant industry associations.

The qualified tradesperson installing the red circle solar system is responsible at all times for their own safety. Under no circumstances should any person attempt to install the red circle solar system without first reading and understanding the operational and installation manual.

3.4 Structural integrity of the roof or structure.

High winds will cause vertical and horizontal loads on the frame. When installing in a high wind area, ensure the frame structure is able to withstand such forces.

Ensure the frame is fastened to the roof in accordance with local council building requirements.

3.5 Water quality.

The working design of the Red circle solar system helps protect the inner surface of the stainless steel storage tank because there is not continuous supply of water borne dissolved solids being brought into the cylinder every time a hot tap is turned on.

The stainless steel cylinder could be susceptible to damage from poor water quality. It is important to check the water quality in your area. If in doubt, contact you water supplier or have a water test done.

If the water quality exceeds the following table, a quality water filter could be installed or the Red circle solar unit should not be installed.

-Total dissolved solids: 600mg/ltr or PPM

-Total Hardness: 200mg/ltr or PPM

-Chloride: 250mg/ltr or PPM

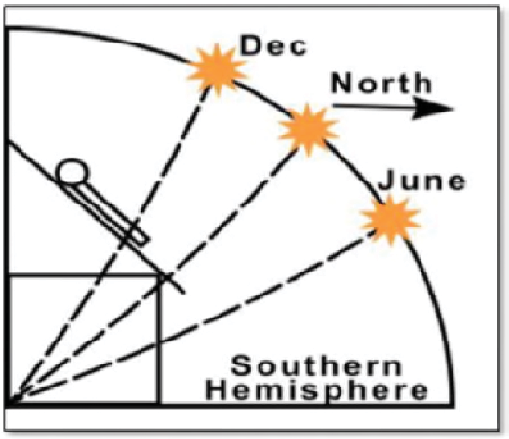
If your water quality exceeds these figures the warranty on the tank will be void.

5. Installation

5.1 Pitch Angle and Orientation of Solar Collectors

The pitch angle of the evacuated tubes in relation to latitude governs the efficiency of the solar system.

In the southern hemisphere the further south from the equator the installation is the lower the sun will be on the horizon during winter months. This can increase the need for electric, gas or slow combustion fire boosting.



However by increasing the pitch of the evacuated tubes means that more solar energy can be harnessed in winter when more hot water is needed.

4. Installation.

Step by step quide.

1. Construct frame. (see 4.1)
2. Fasten frame. (see 4.2)
3. Mount tank. (see 4.3)
4. Plumbing connections. (see 4.4)
5. Insert tubes. (see 4.5)
6. Commission system. (see 4.6)

Construct frame.

Please note there are 3 legs in both the low frame and the high frame.

Low frame.

NO.1 Front leg

NO.2 Bottom bracket

NO.3 Back leg

NO.4 Diagonal bar of upright support

NO.5 Diagonal bar

NO.6 Bottom reflector bar

NO.7 Reflector

NO.8 Tank bracket

NO.9 Tank

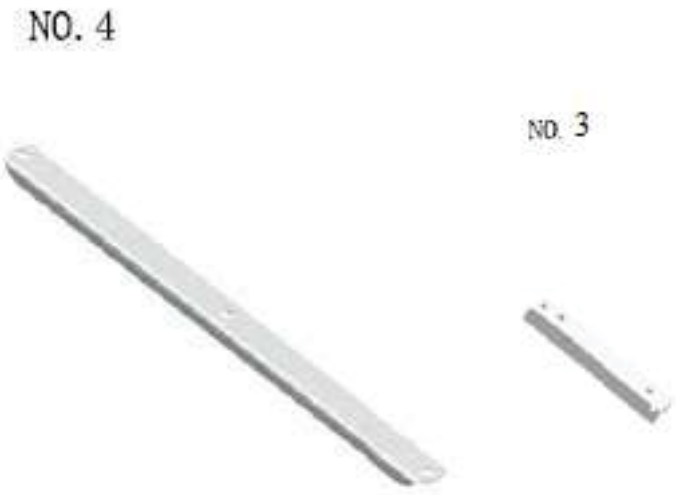
NO.10 Vacuum tube

NO.11 Rubber cup

NO.12 Bottom support

Low frame. 15 Deg.

Parts included Stand pieces



2

NO. 5

NO.

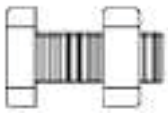
NO. 1

NO. 6

NO. 7

NO. 8

Screws



NO. 11

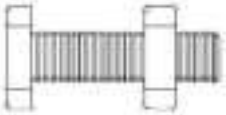
NO. 9

M8X16

M1

NO. 12

NO. 10



M6X25

M2

M6X45

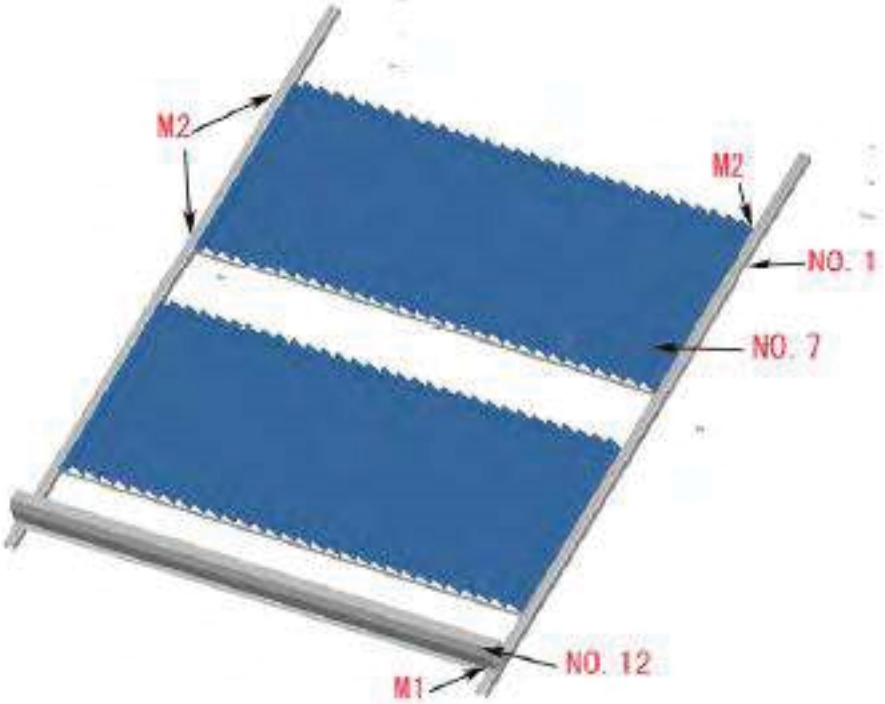
M3

Installation procedures:

STEP A

Screws: M1 /M2 Stand pieces: NO.1/NO.7/NO.12

Instruction: Assemble stand piece NO.1 with NO.7 using M2 , then assemble stand piece NO.12 with NO.1 using M1.



Notes:

-Remove the blue protective coating from the reflectors.
-Lay the reflectors face down.
-Attach to the main frame. (second longest sections) using the thin medium length bolts.
-Attach the bottom support for the tubes.
-Only hand tighten the nuts.

STEP B

Screws: M1 Stand pieces: NO.8

Instruction: Assemble stand piece NO.1 with NO.8 using M1.

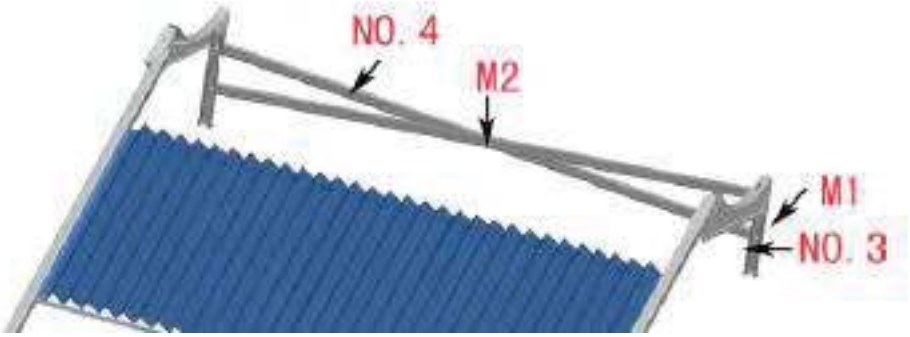
Notes:

-Ensure the side brackets that support the tank have the solid flat surface facing out.

STEP D

Screws: M1/M2 Stand pieces: NO.4

Instruction: Assemble stand pieces NO.4 using M2,then assemble stand piece NO.4 with NO.3 using M1.



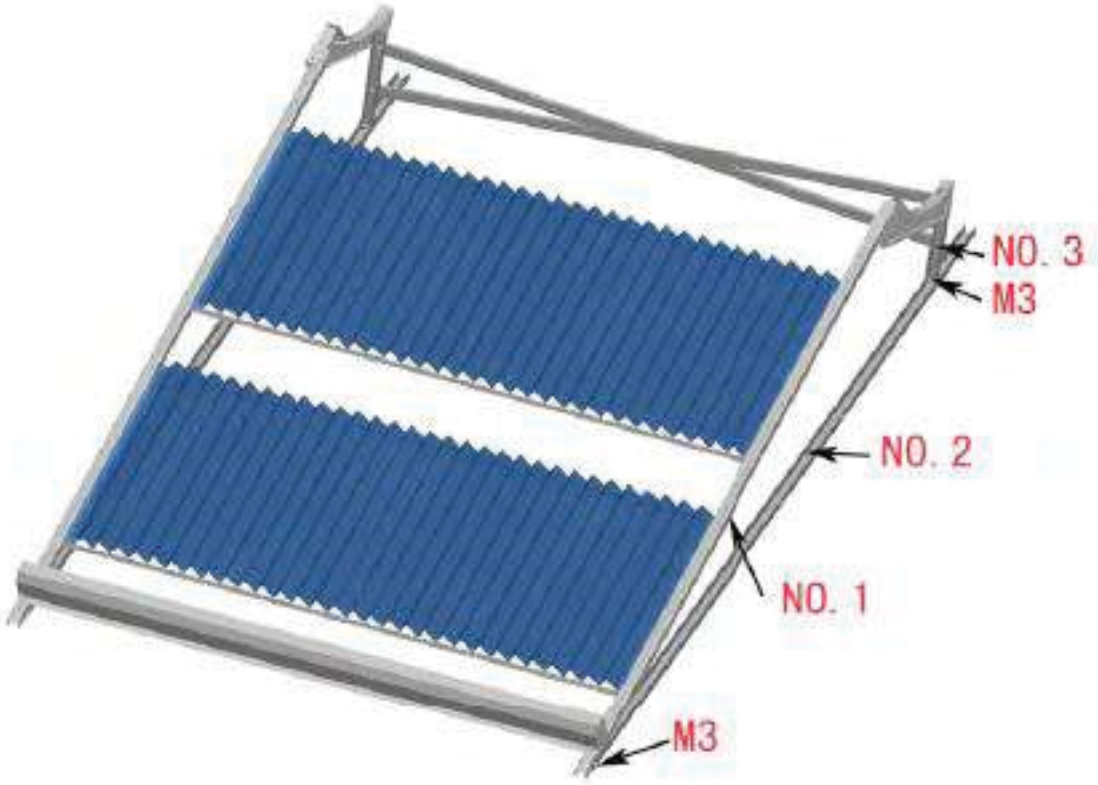
Notes:

-join x bracing to frame. Flat sections from both sides join on the middle leg.

STEP E

Screws: M3 **Stand pieces: NO.2**

Instruction: Assemble stand piece NO.2 with NO.1 and NO.3 using M3



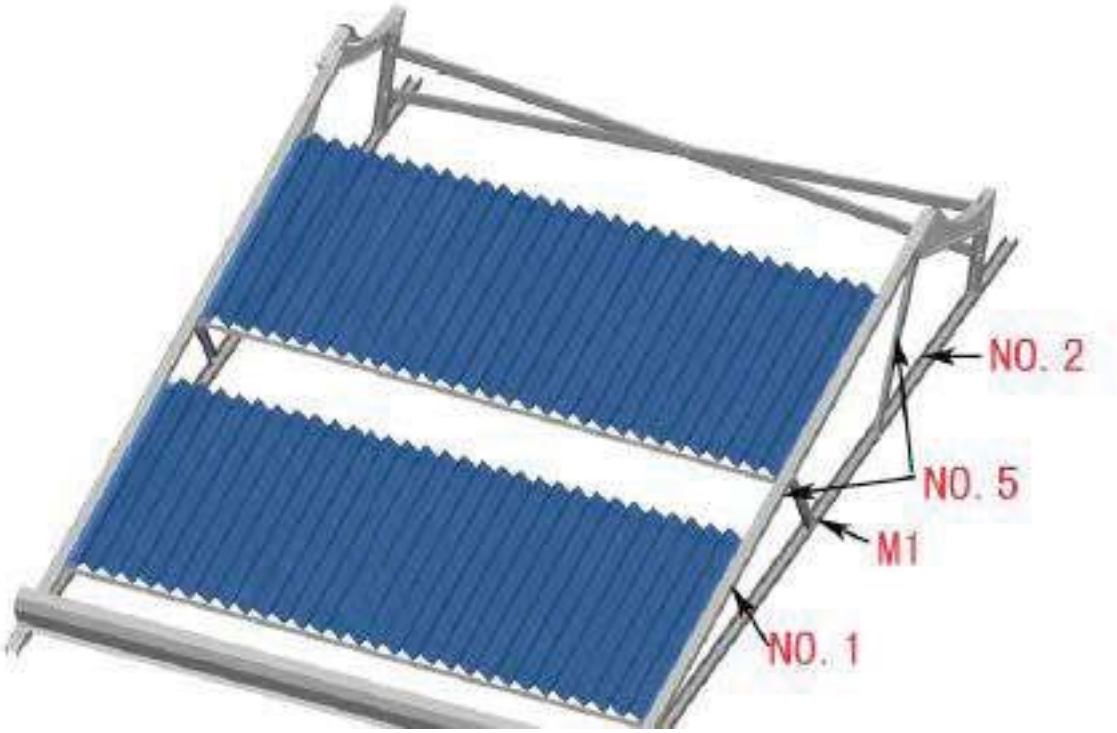
Notes:

-Join longest section to the frame. This will sit flat on the roof with the channel facing up.

STEP F

Screws: M1

Instruction: Assemble NO.5 with NO.1 and NO.2 using M1.



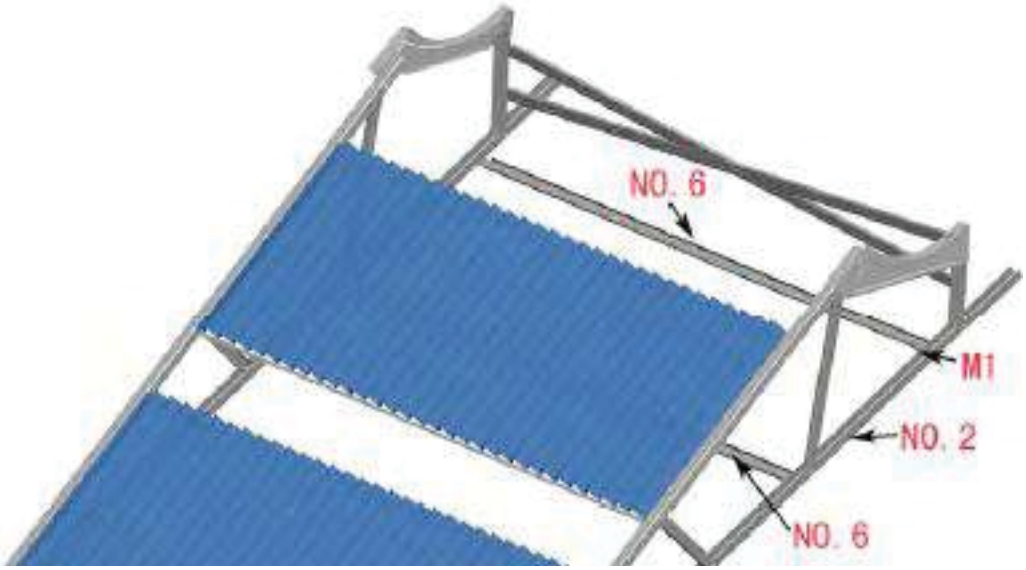
Notes:

-Connect small supports. The long section shares the bolt that is closest to the front of the frame in the tank support bracket.

STEP G

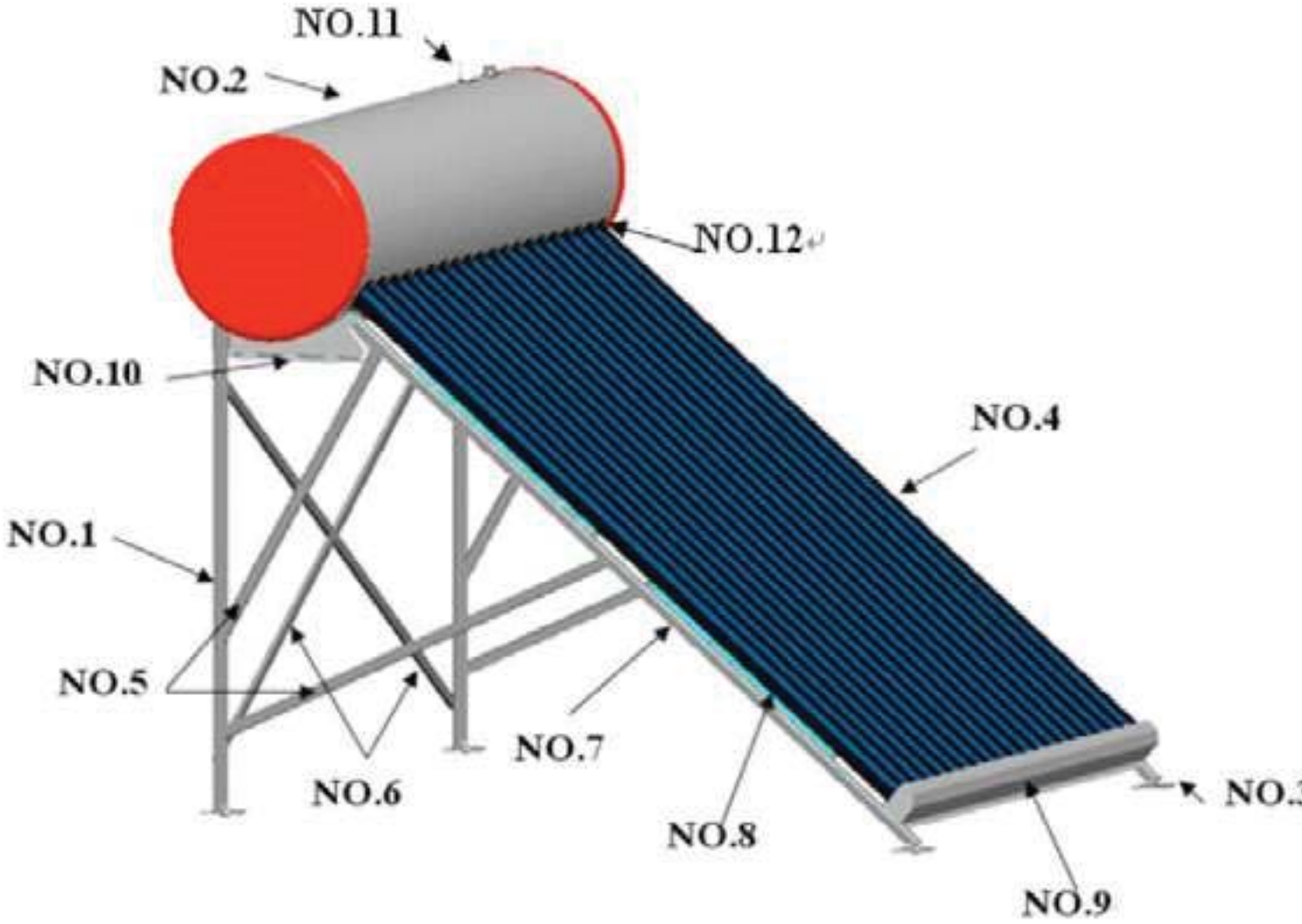
Screws: M1

Instruction: Assemble NO.6 with NO.2 using M1.



Once the frame is complete, carry onto the roof and mount down using the holes provided or if battens/supports to not line up, extra holes can be drilled in the frame to secure properly.

High frame. 45 deg.



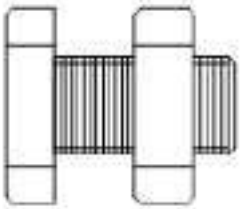
Stand Piece

NO.1**×2**

NO.7×2

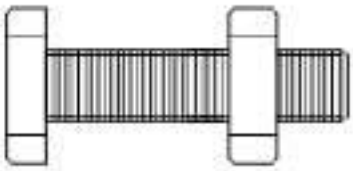
NO.6×2

Screws



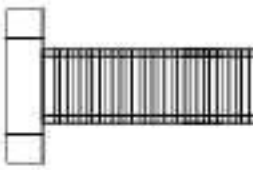
M1

M8※12 X 20



M2

M6※25 X 9



M

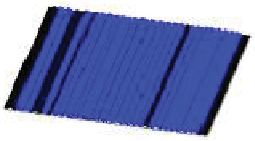
M6※

Rubber Cup

NO.3**×4**

Tank

NO.4×20 NO.8×2 NO.9×1



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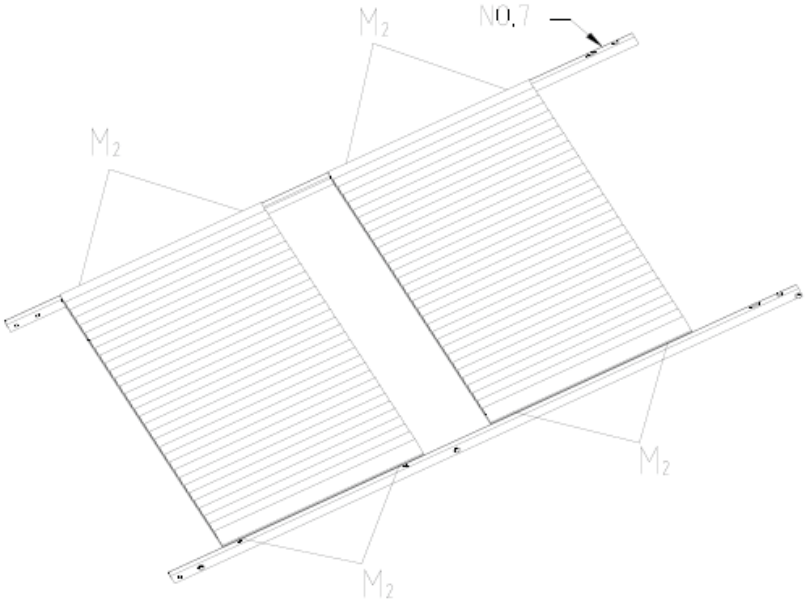
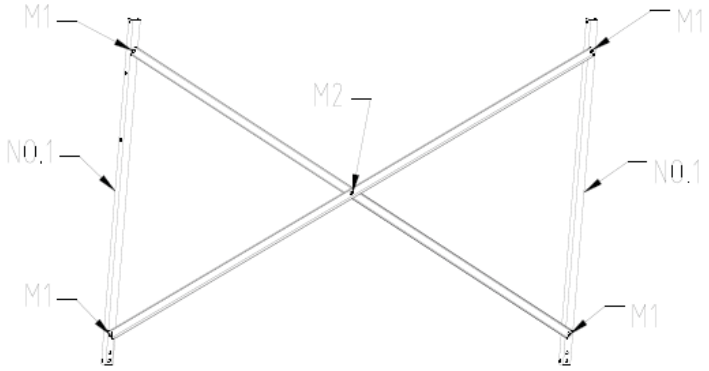
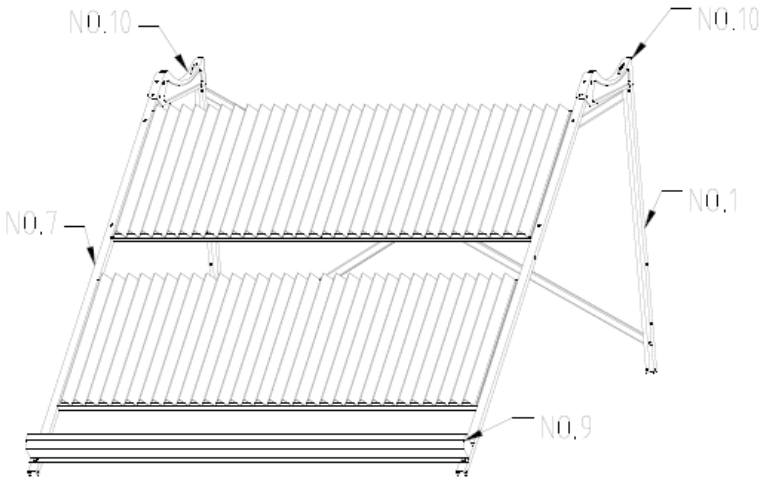
Step by step instructions:



Steps	Screws	Material need	Instructions
Steps A	M2	Stand piece No.7 reflectors	Screw reflectors into stand piece No.7 using M2



Steps	Screws	Material need	Instructions
Steps B	M1 M2	Stand piece No.1 No.6	Assemble stand pieces No.6 using M2 Then assemble X pieces with No.1 stand pieces using M1



Steps	Screws	Material need	Instructions
Steps C	M1	Stand piece No.1 No.6 No.9 No.10	Assemble No.10 with No.1 and No.7 using M1 Then assemble No.9 with No.7 stand pieces using M1

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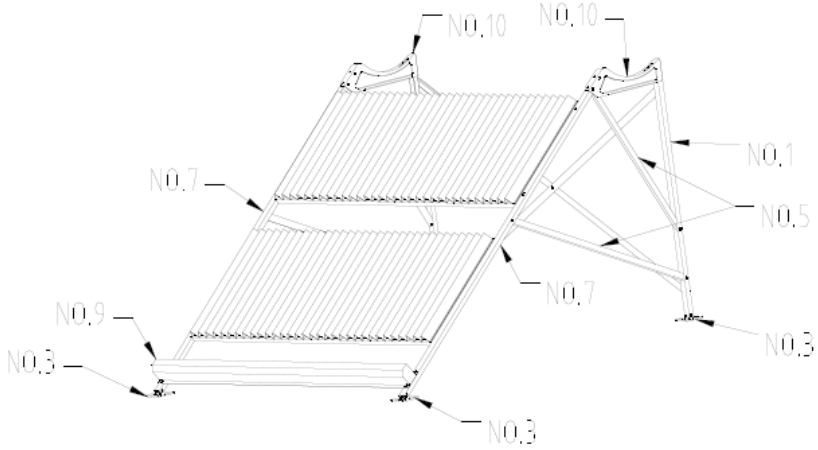
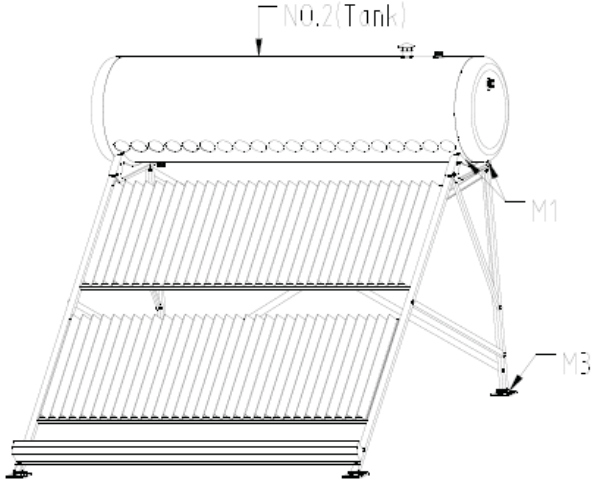
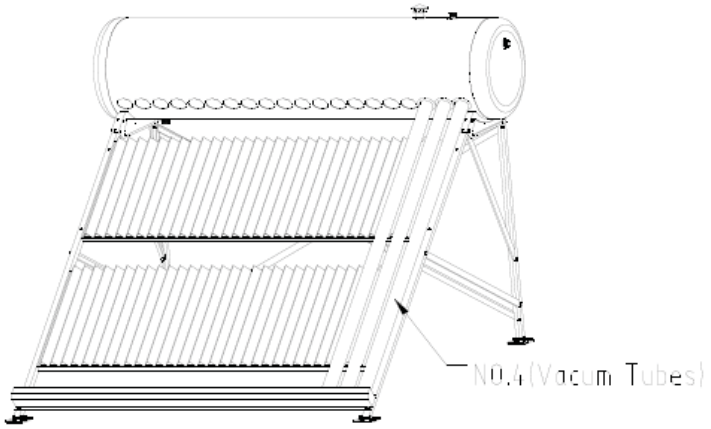


Steps	Screws	Material need	Instructions
Steps D	M1 M3	Stand piece No.1 No.3 No.5 No.6 No.9 No.10	Assemble No.5 with No.1 and No.7 using M1 Then assemble No.3 with No.7 and No.1 using M3



Steps	Screws	Material need	Instructions
Steps E	M1	Stand piece No.1 No.2 No.3 No.5 No.6 No.9 No.10	Assemble No.2 with No.10 using M1



Steps	Screws	Material need	Instructions
Steps G		NO.4 Rubber Cups	1.Place the rubber cups on holes on the bottom support 2.Press vacum tubes into manifold hole ★Suggestion: Spread some lubrications on the top of the vacum tube when press. Such as dishwasher

Plumbing connections.

-Cold water connection is on right (looking at the tank) and hot outlet is on the left on the top of the tank.

-Teflon all fittings.

See diagram below.

-Take all plastic caps off tank fittings.

-Install solenoid.

-Connect small black hose to left side of solenoid and run to ½ male threaded fitting.

-Install Duo valve.

-Install 500KPA pressure limiting valve.

-Install 500KPA expansion control valve on cold feed pipe.

-Connect to cold water inlet on right side of solenoid.

-Connect hot water on left side of tank at the top.

-Install Solar Tempering valve.

-Cap thermosyphon connections.

-Install sacrificial anode.

-Screw PV panel to Stainless steel frame provided.

-Mount frame so the solenoid is covered and facing the same way as the tank.

-Install Stainless steel float.

-Connect float to solenoid.

-Connect PV panel to solenoid. (see diagram below)

IMPORTANT INSTALLATION INSTRUCTIONS

Water supply **must** be fitted with a

500 kPa Pressure Control Valve.

Vent Fitting must **NOT BE** blocked at any time

A 600 kPa cold water expansion Valve **must** be fitted on the cold water supply to the tank with discharge pipe directed downwards

Installing the Evacuated tubes.

-When Handling the Tubes it is recommended to wear protective gloves.

-Take particular care to avoid damaging the nipple on the end of the tubes. If the glass nipple is broken or cracked the evacuated tube will not leak but the vacuum will be lost and the tube will need to be replaced. The tubes should have a silver colour at the end. If this silver colour turns black, the glass is damaged and the tube must be replaced.

Inserting the tubes into the silicone seal on the storage tank.

- Visually inspect all silicone seals and make sure they are seated properly and there is no tank insulation stuck to the seal.
- Install white cups in the bottom bracket (#12, Bottom support)
- Place a black rubber weather seal over the open end of the tube and slide down 150mm.
- Spray WD40 lubricant or similar onto the silicone seal.
- Dip the open end of the tube in either soapy water or spray with a lubricant.
- Insert the open end of the tube into the tank with a twisting motion.
- Do not use excessive force to insert the tube.
- The tube only needs to be inserted into the tank far enough so that the end of the tube can pass the bottom support cradle.
- Slide tube back into the white cup in the base of the frame.
- Ensure the tube is perpendicular to the storage tank.
- Slide black weather seal up to the face of the tank.
- Once all the tubes are installed, the tank can be filled with water. See commissioning the system below.

Commissioning the system.

-Fill the tank using a garden hose through the center vent hole.

-Once tank is full, check there are no leaks where the tubes enter the tank. If there is a leak, remove the tube and re seat the silicon seal in the tank. Re insert the tube and fill again.

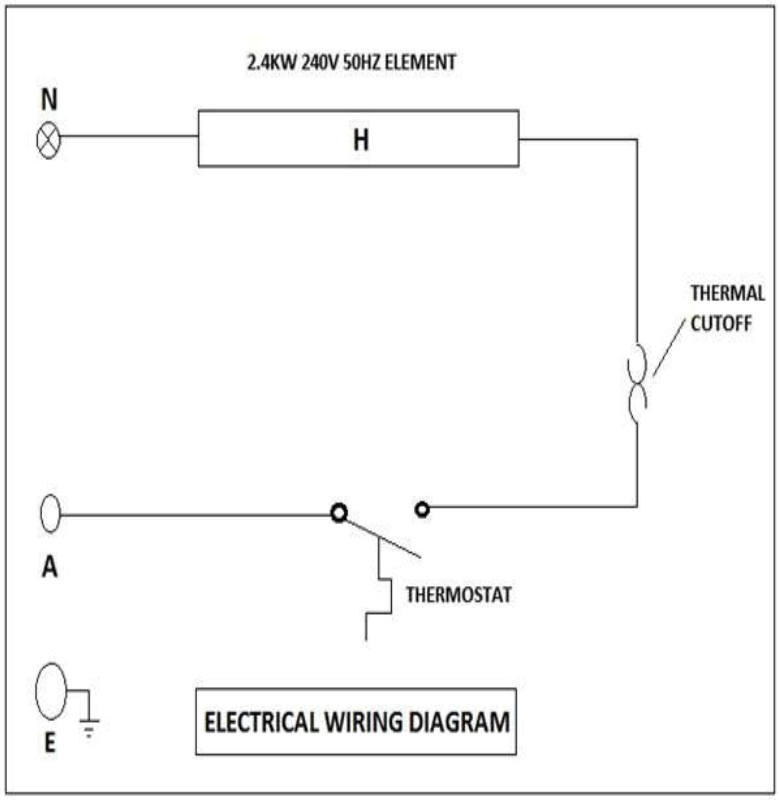
-Turn on the water at the duo valve.

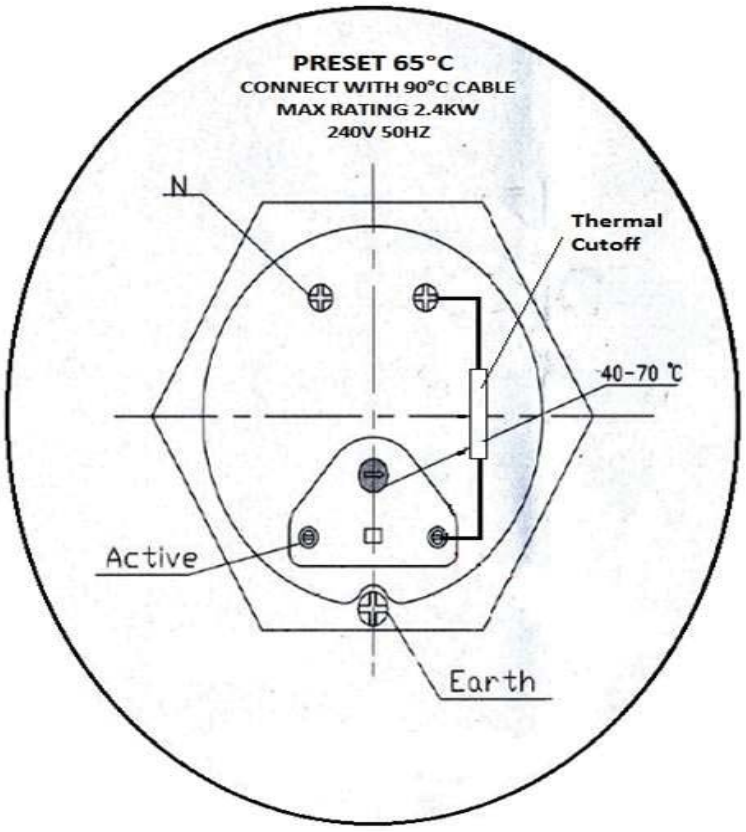
-Bleed the air from the system by tuning on a hot tap in the house.

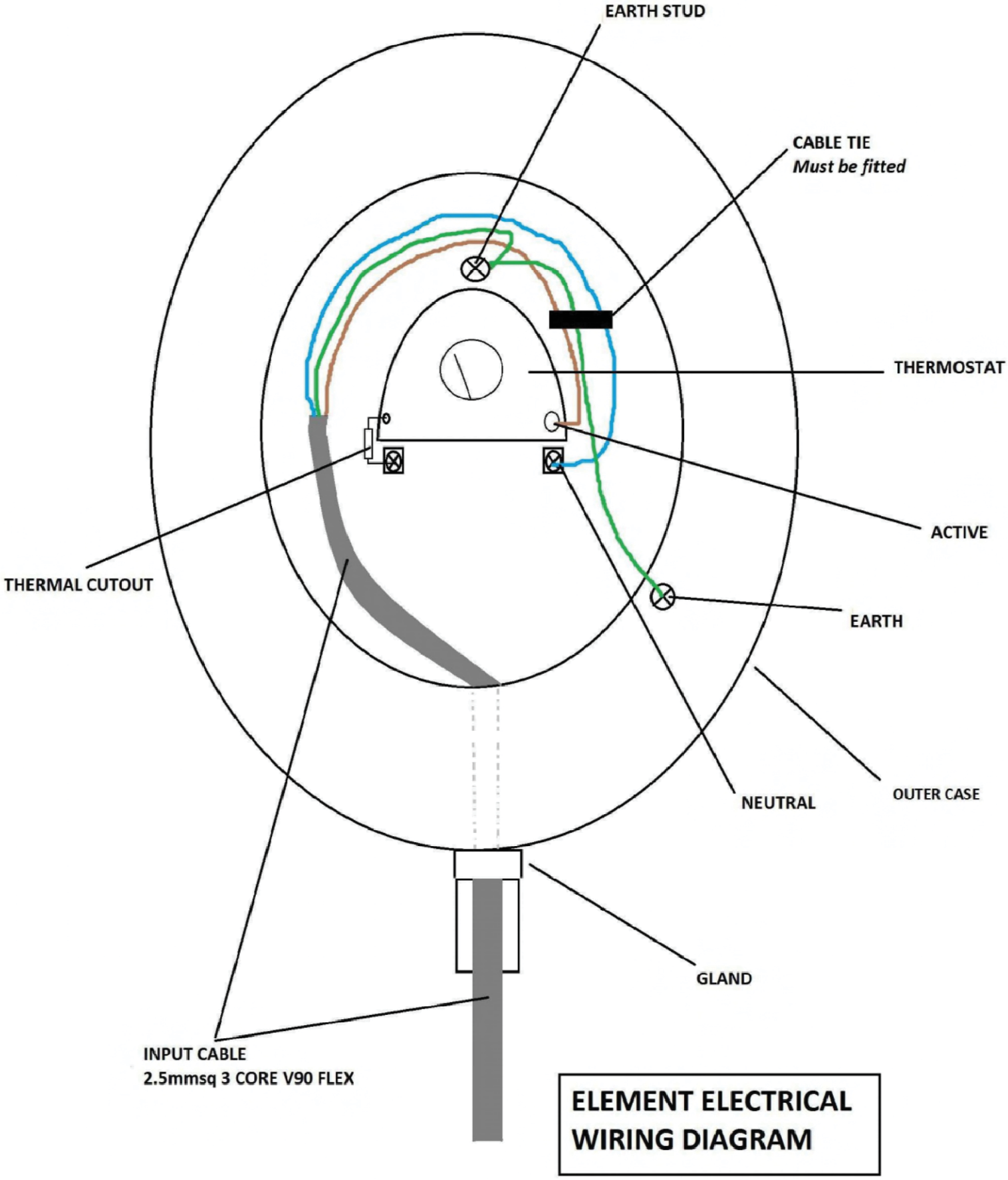
-check all fittings for leaks.

-Test the filling solenoid by moving the float up and down. The solenoid should open and close letting water in through the small black hose. (there must be sunlight to test as the solenoid is operated by the 12 volt PV panel)

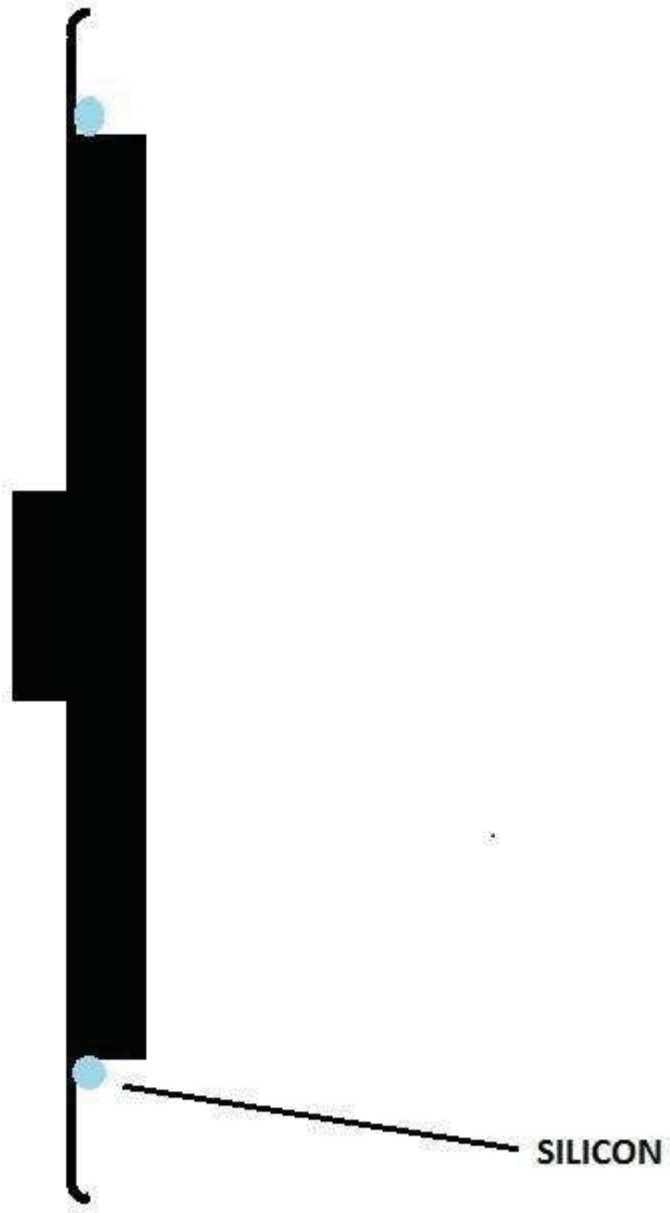
-Re-insert the float and connect to the solenoid once test is complete.


2.4KW 240V 50HZ ELEMENT
N
H
THERMAL
CUTOFF
A
THERMOSTAT
E
ELECTRICAL WIRING DIAGRAM


PRESET 65°C
CONNECT WITH 90°C CABLE
MAX RATING 2.4KW
240V 50HZ
N
Thermal
Cutoff
40-70 °C
Active
Earth



ELEMENT ELECTRICAL WIRING DIAGRAM

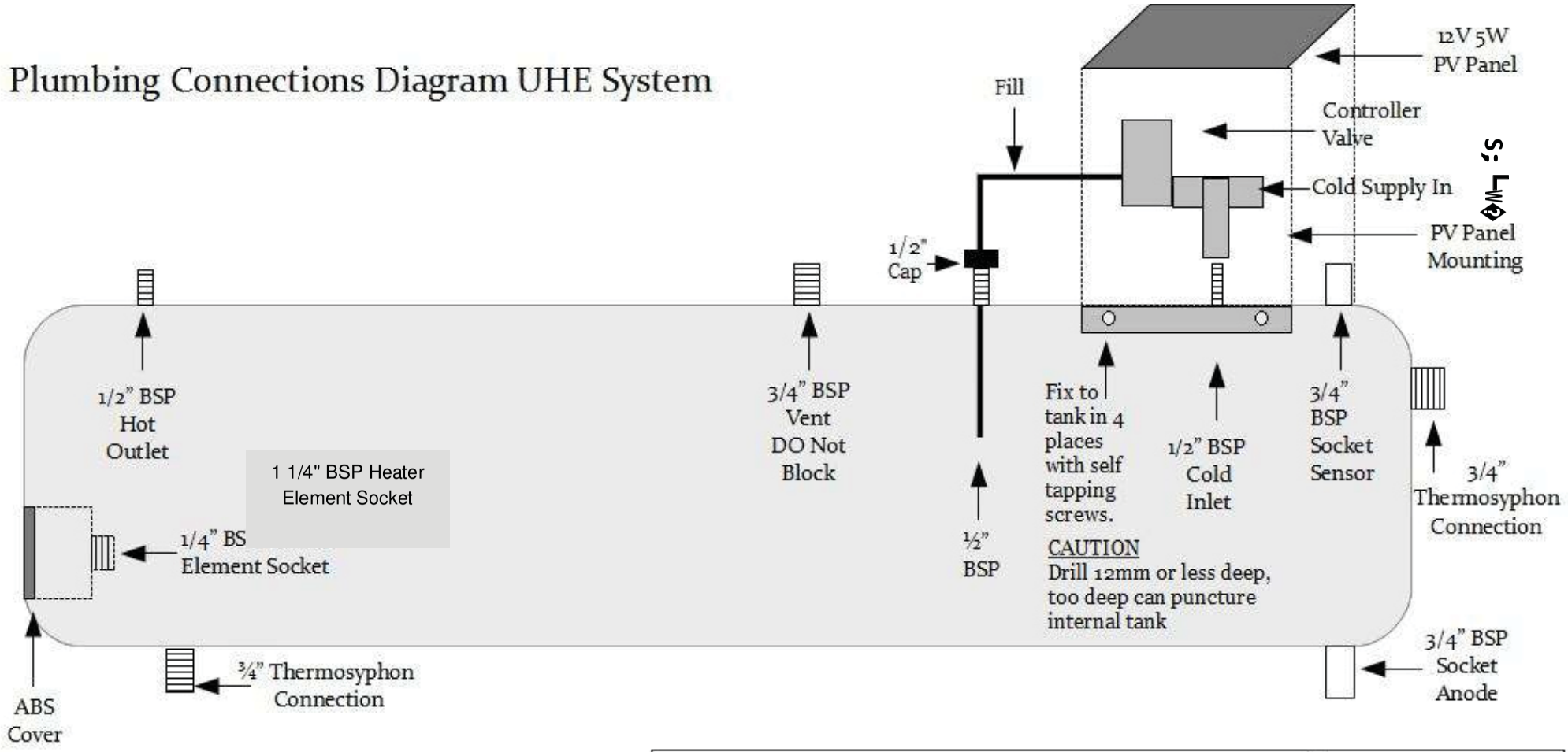


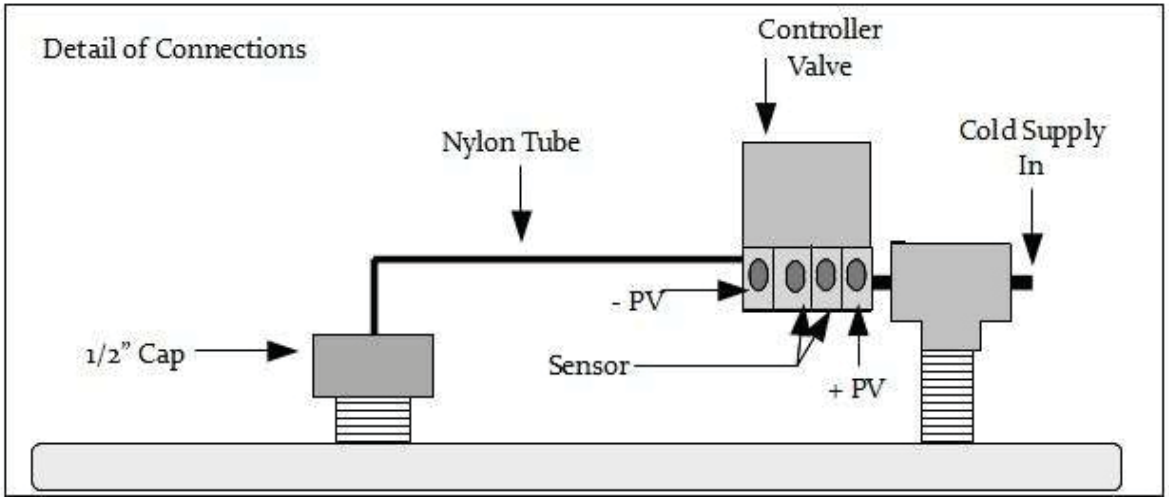
When fitting lid, run a small bead of silicon around the edge.

To remove cover, place tip of a flat screw driver (or similar tool) between rubber seal and plastic cover and gently pry open.

Reseal with silicon when replacing lid.

Plumbing Connections Diagram UHE System





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